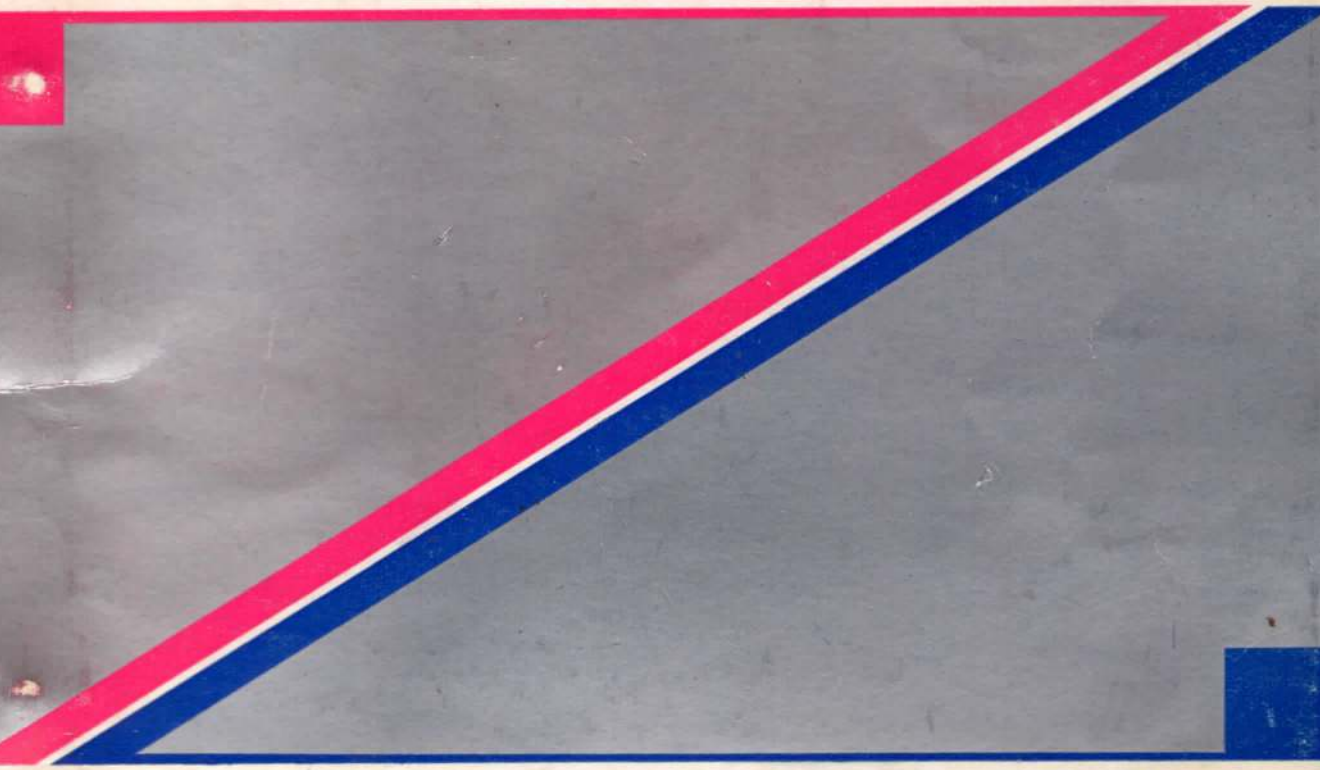
3003

Dora Lisbrich

AUTOMATIC



ZIG-ZAG SEWING MACHINE

INSTRUCTION MANUAL

CONTENTS

		Page
1.	Name of Parts	1
2.	Turning on Light	2
3.	Tightening and Loosening of the Hand Wheel	2
4.	Winding the Bobbin	3
5.	Right Needle and Thread for Right Cloth	3
6.	Insertion of the Needle	4
7.	How to Thread the Needle	4
8.	How to Remove the Bobbin Case	5
9.	How to Insert the Bobbin Case	5
10.	How to Thread the Bobbin Case	5
11.	How to Sew Straight Stitches	6, 7
12.	Adjustment of Stitches and Reverse Sewing	8
13.	Adjustment of Feed Dog	8
14.	Adjustment of Pressure to Cloth	9
15.	Cleaning the Race and Hook	10
16.	How to Clean the Feed Mechanism	10
17.	Manual Zigzag Sewing	11
18.	Automatic Zigzag Sewing	11, 12
19.	How to Make Blind Stitch Hems	13
20.	How to Sew on a Zipper	14
21.	How to Monogram	14
22.	How to Embroider	15
23.	How to Use the Hemmer	15, 16
24.	How to Make Button Holes	16, 17
25.	Sewing on Buttons	18
26.	Lace Sewing	18
27.	How to Use the Cloth Guides	18
28.	How to Applique	19
29.	Granite Stitch Embroidery	19
30.	How to do Curving	20
31.	How to do Darning	20
32.	How to do Facing with Bias Tape	21
33.	How to Make a Flat Felled Seam	21
34.	How to do Patching with a Zigzag Machine	22
35.	How to Mend Elastic Knitwear	22
36.	How to Repair a Tear in Material	23
37.	How to Overcast Seams	23
38.	How to do Piping	23
39.	How to do Smocking	24
40.	How to do Gathering	24
41.	How to Keep the Machine in Good Repair	25
42.	The Care and Adjustment of the Motor	25, 26
43.	Unsatisfactory Conditions: Causes and Remedies	27

1. Name of Parts

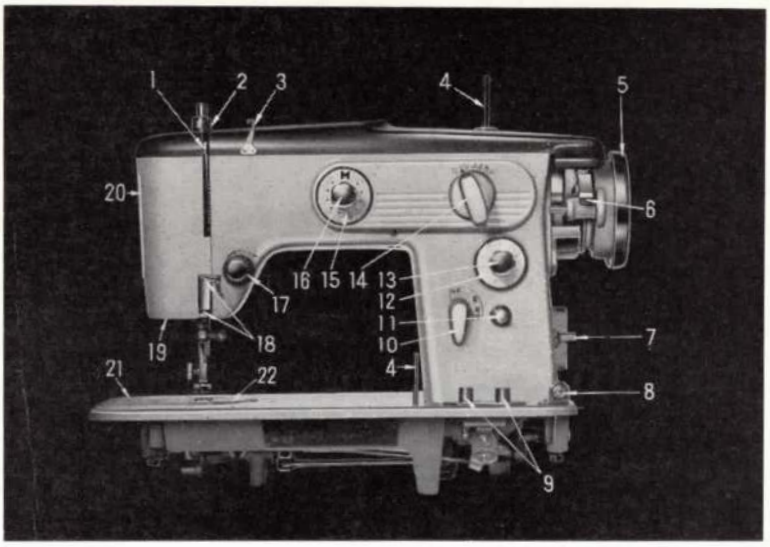


Fig. 1

1) Thread Take-up Lever
2) Patch-O-Matic Darner
3) Arm Thread Guide
4) Spool Pin
5) Hand Wheel
6) Automatic Bobbin Winder
7) Built in Light Switch

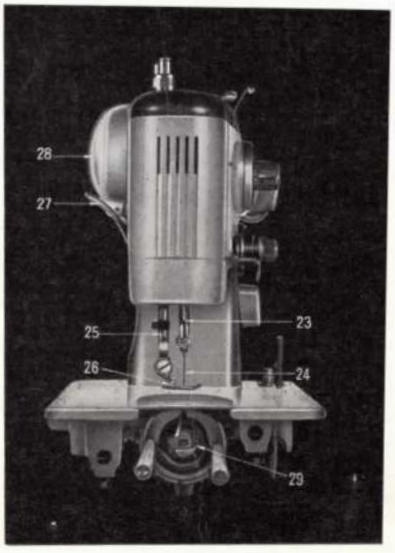


Fig. 2

8) Bobbin Winding Thread Guide
9) Drop Feed Push Button
10) Button Holer Knob
11) Reverse Sewing Push Button
12) Stitch Length Regulating Dial
13) Stitch Length Regulating Knob
14) Zigzag Width Regulating Knob
15) Pattern Selecting Dial
16) Pattern Selecting Knob
17) Upper Thread Tension
18) Arm Thread Guide
19) Built in Light
20) Face Plate
21) Slide Plate
22) Needle Plate
23) Needle Bar
24) Needle
25) Presser Bar
26) Presser Foot
27) Presser Bar Lifter
28) Cam Housing Door
29) Open Race

2. Turning on Light

The lamp housing is enclosed in the face plate (Fig. 3). The switch for operating the light is beneath the Hand Wheel (Fig. 4).

Changing bulb:

Be sure to first unplug your sewing machine. With your left hand, open the face plate, and the bulb is easily replaced.

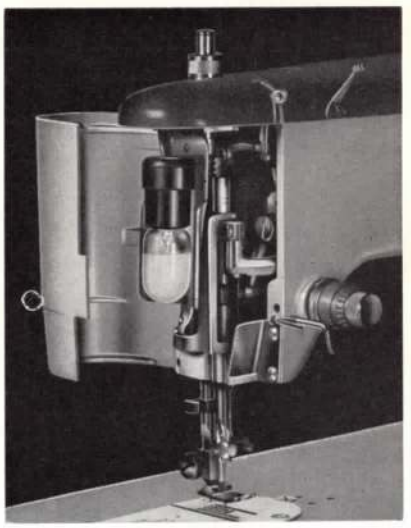


Fig. 3

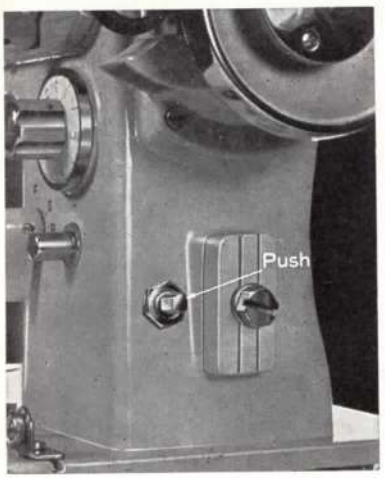
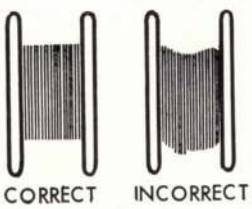
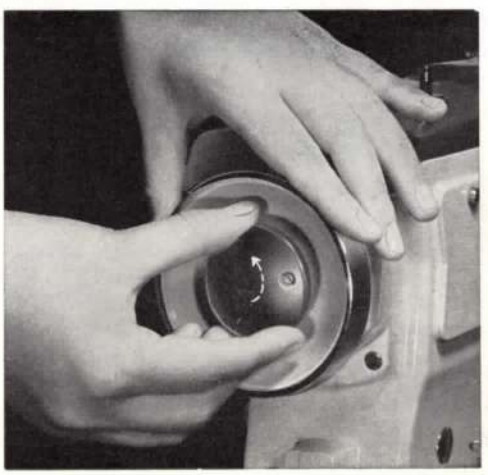


Fig. 4

3. Tightening and Loosening of the Hand Wheel

Hold the hand wheel in your left hand and turn the stop motion device toward you, and the hand wheel will be loosened. Reverse the action to tighten it.





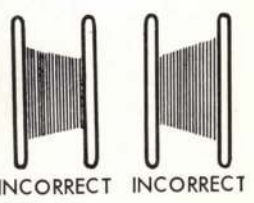


Fig. 5

4. Winding the Bobbin

Bobbin is easily wound by the following two methods (Fig 6, 7).

A) a) Loosen the stop motion device.

b) Place the spool on the spool pin (1). Pass the end of the thread through the Arm thread guide (2) and bobbin winder thread guide (3). Wind the thread around the bobbin (4) seven or eight times, and place the bobbin on the bobbin winder spindle (5). Press lever (6), and the bobbin presser (7) comes into the bobbin. The rubber ring (8) then contacts the hand wheel. The bobbin winder automatically disengages when the bobbin is about 90% full.

B) Actual operation is as per the above item (A) (Re: Fig 7)

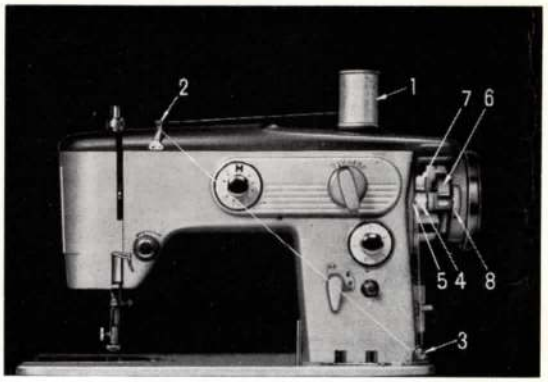


Fig. 6

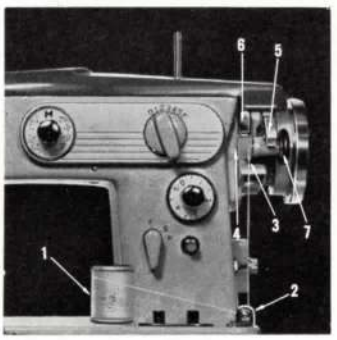


Fig. 7

5. Right Needle and Thread for Right Cloth

Size of Needles	Cloth	Size of Thread
15X1 No. 9	Thin calico, silk, serge, and muslin	No. 80-100 cotton thread or fine silk thread
15X1 No. 11	Thin calico, cotton cloth, crepe de chine, hosiery, and silk	No. 60-100 cotton thread or ordinary silk thread
15X1 No. 14	Ordinary cotton cloth, thick silk, thin woolen goods, towels and shirting	No. 40-60 cotton thread or ordinary silk thread
15X1 No. 16	Thick cotton cloth, serge and thin woolen goods	No. 30-60 cotton thread or ordinary silk thread
15X1 No. 18	Ordinary woolen goods, trousers, over-coats, thick calico and children's clothes	No. 30-60 cotton thread or ordinary silk thread

NOTE: Use a good quality mercerized cotton thread, if available, to avoid shrinking when laundered.

6. Insertion of the Needle

(a) Loosen the needle clamp with your right hand and hold needle so that the flat side is to your right, then insert the upper part of the needle as far as it hits the bottom of the clamp.

(b) Tighten the needle clamp with your right hand.

(c) As the picture indicates, turn the needle clamp to the left to loosen it, and turn it to the right to tighten it.

(d) Always make sure that the long groove in the needle is towards the left.

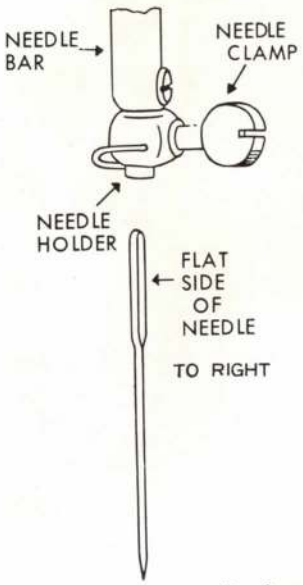


Fig. 8

7. How to Thread the Needle

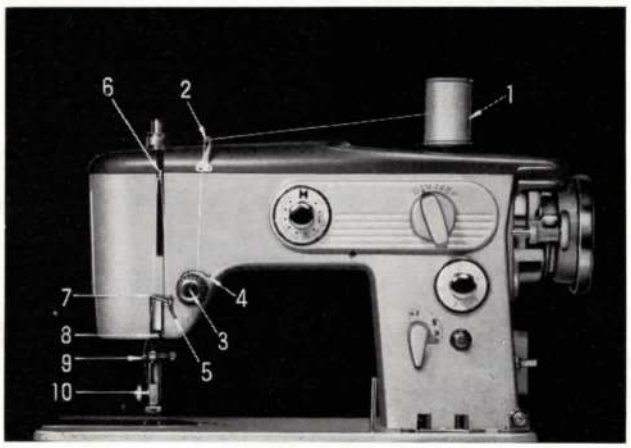


Fig. 9

(a) Raise the needle bar to its highest point.

(b) Thread the needle by following the numbers indicated in the picture.

① Spool Pin
② Arm Thread Guide
③ Tension Releasing Disc
④ Thread Take-up Spring
⑤ Thread Take-up Lever Thread Guard
⑥ Thread Take-up Lever
⑦ Thread Take-up Lever Thread Guide (Upper)
⑧ Thread Take-up Lever Thread Guide (Lower)
⑨ Needle Clamp Thread Guide
⑩ Needle

8. How to Remove the Bobbin Case

(a) Raise the needle bar to its highest point by turning the hand wheel.

(b) Open the bobbin case cover.

(c) Raise the latch of the bobbin case and take it out.

(d) Lower the latch of the bobbin case thus taken out, and turn it with the opening face downward. The bobbin will drop out.

9. How to Insert the Bobbin Case

(a) Raise the latch and insert the bobbin case on the shuttle race. Be sure that the horn goes into the slot in the shuttle race.

(b) Lower the latch when the bobbin case has been inserted.

(c) Be careful not to remove or insert the bobbin case when the needle bar is lowered. The shuttle body and the shuttle race will be damaged if this warning is ignored.

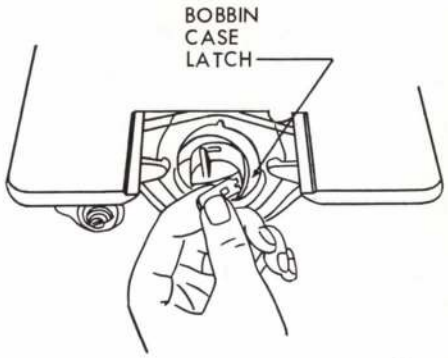


Fig. 10

10. How to Thread the Bobbin Case

(a) Hold the bobbin in your right hand, pull out the thread about 5 inches, and pull the thread through the bobbin case.

(b) Pull the thread through the slot in the bobbin case as indicated in Figure B, and let the thread go under the tension spring.

(c) Pull out the thread, and it will come out to the position indicated in Figure C.

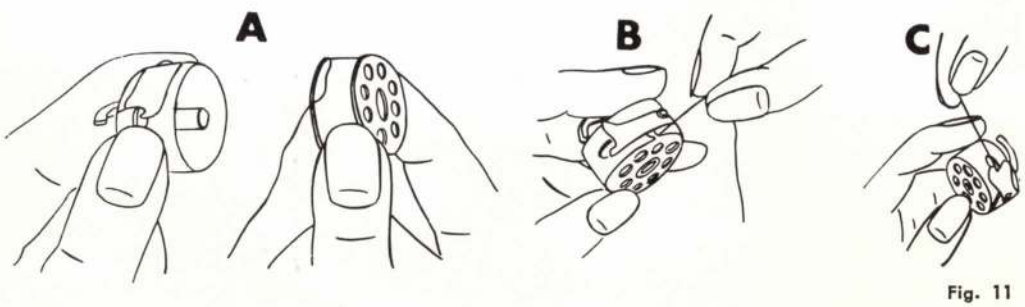
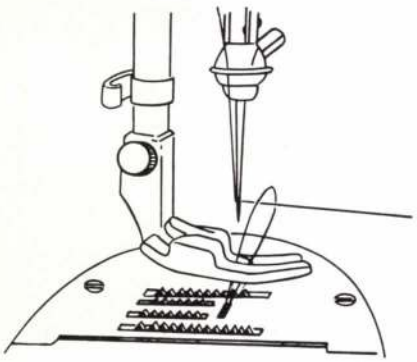
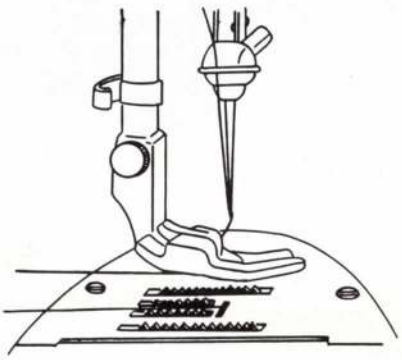


Fig. 11





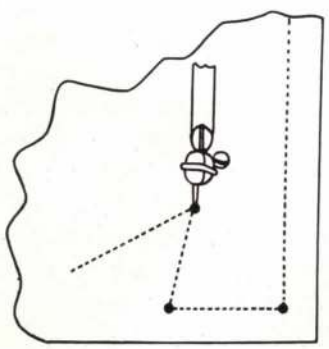


Fig. 12

11. How to Sew Straight Stitches

(1) **Prepare for Sewing as Follows :**

(a) Replace the needle plate and the presser foot with those for straight sewing.

(b) Set the zigzag width regulating knob to " 0 " (zero position). Now you can sew straight sewing.

(c) Hold the upper thread lightly in your left hand.

(d) Turn the hand wheel towards you gently with your right hand.

(e) When the needle bar with the thread inserted into the needle hole has been raised to its highest point, pull the upper thread, and then the lower thread will come out of the needle hole picked up by the upper thread.

(f) Put both the upper and the lower thread beneath the presser foot and pull the ends to the back.

(g) To avoid jamming
Have take-up lever in highest position, hold both ends of the thread for first two or three stitches.

(2) **Actual Sewing**

(a) Place the cloth to be sewn beneath the presser foot, make one stitch by turning the hand wheel, and lower the presser foot.

(b) Start sewing.

(c) Do not pull on the material. This often causes the needle to break.

(3) **How to Change the Direction of Sewing**

(a) Stop sewing with the needle in the cloth.

(b) Raise the presser foot and reverse the direction of the material.

(c) Lower the presser foot and resume sewing.

(4) **How to Remove the Cloth**

(a) When the needle bar has reached its highest point, stop sewing.

(b) Raise the presser foot and pull the material out to the other side.

(c) Cut the edges of the upper and lower threads, leaving about 5 inches free at the ends. This makes it easier to resume sewing on the next seam.

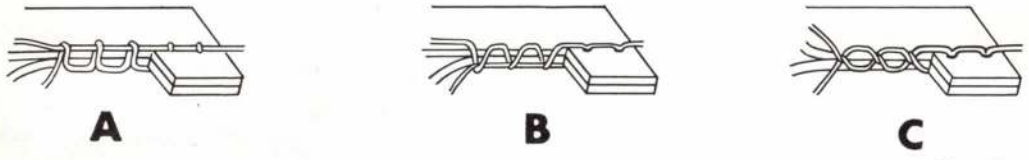


Fig. 13

(5) **Adjustment of the Upper and Lower Thread Tension**

(a) Satisfactory seams can be produced by being sure the upper thread and the lower thread are knotted right in the middle of the two pieces of material being sewn. See Figure C.

(b) When too much tension is applied to the upper thread, the result shown in Figure A is produced.

(c) When too much tension is applied to the lower thread, the result shown in Figure B is produced. (looping on the bottom)

(6) **How to Adjust the Tension of the Upper Thread**

(a) Usually perfect seams can be produced by regulating the tension applied to the upper thread.

(b) Turn the tension disc to the right to increase the tension.

(c) Turn it to the left to loosen the tension.

(d) Do not turn the disc too far at one time or irregular seams will be produced.

Fig. 14

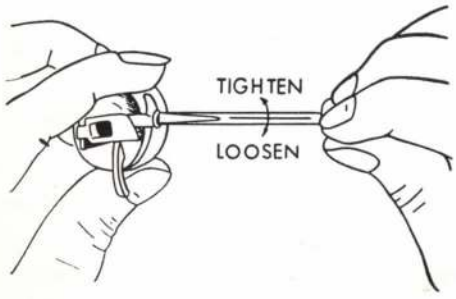


Fig. 15

(7) **How to Adjust the Tension of the Lower Thread**

(a) Ordinarily it is unnecessary to change the tension of the lower thread, but there are some fabrics that require a change.

(b) Turn the screw in the direction indicated by the arrow in order to tighten the tension. (right to tighten)

(c) Turn the screw in the direction indicated by the arrow in order to loosen the tension. (left to loosen)

(d) As it depends entirely upon the tension whether or not you sew well, it is highly important that you learn how to adjust the tension as soon as possible.

(e) Use the small screw driver in your accessory kit to make these adjustments.

12. Adjustment of Stitches and Reverse Sewing

(a) The numbers on the stitch length dial (4) show the length of the desired stitches (0–5).

(b) Turn the knob (1) to the left to lengthen the stitch by setting the number on the dial opposite the little red mark (2).

(c) The higher the numbers the longer stitch you will get. The lower the numbers the smaller the stitch will be, when the dial is at or near (0) zero the stitches will be on top of each other and the material will not move.

(d) For reverse sewing push the chrome button (3) all the way in. This button is located right under the stitch length dial. To resume forward sewing again let the button out to its normal position.

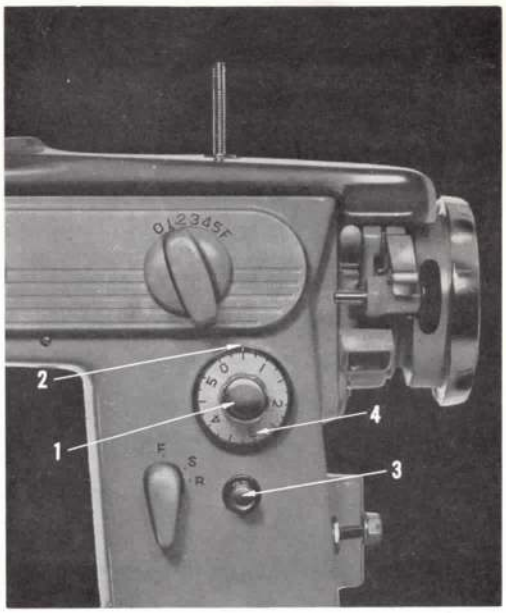


Fig. 16

13. Adjustment of Feed Dog

(a) In usual sewing the right side drop feed button (1) must be pushed down as far as it will go, then the letter "N" is indicated in the window (4).

(b) When sewing thin materials (such as silk), the left side drop feed button (2) must be pushed down until the red mark line (3) reaches to the surface of the plate (5).

(c) In embroidery or button sewing, the height of the feed dog must be lower than that of the needle plate so that the cloth can be moved freely. In this case the drop feed button (2) must be pushed down entirely until the letter "E" appears at the window (4).

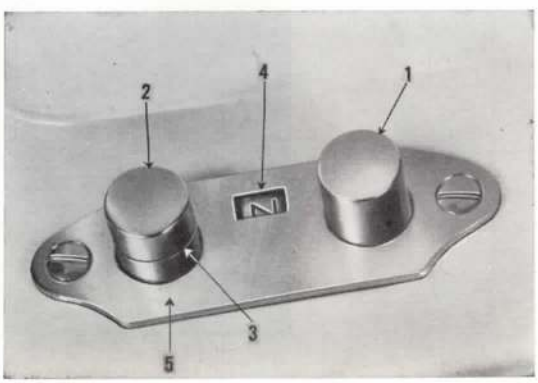


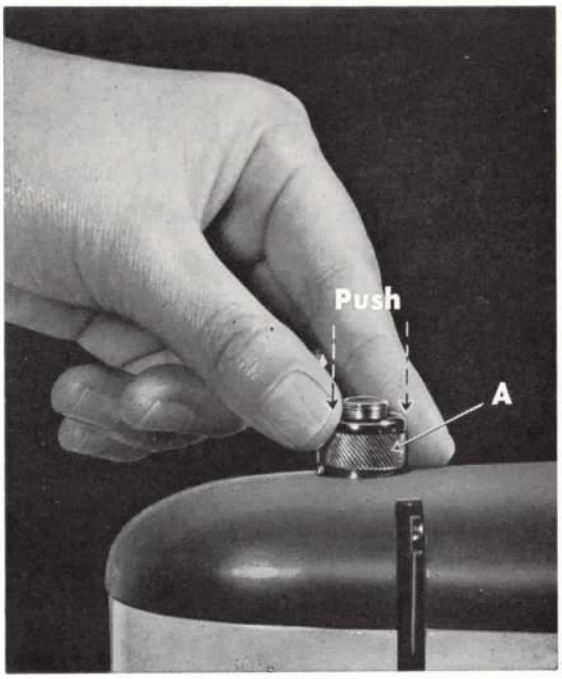
Fig. 17

14. Adjustment of Pressure to Cloth

(a) In the case of ordinary cloth, it is seldom necessary to adjust the pressure, but when sewing thin or delicate materials the pressure must be so adjusted that the cloth gets the proper pressure. For instance, too much pressure will cause the material to pucker.

(b) Press down the patch-o-matic darner (A) and the presser bar will jump up and the pressure will become weak. Press down the presser bar (B) and the pressure will become strong.

(c) You can easily adjust the pressure. In the case of embroidering, the presser bar should be raised to its highest point.



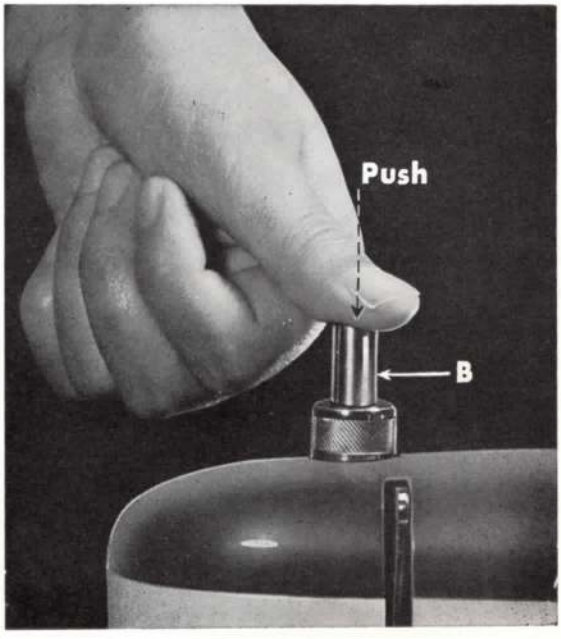


Fig. 18

15. Cleaning the Race and Hook

The shuttle cover can be taken out easily so that when lint and waste thread have collected in it they can be removed and cleaned as follows: —

Fig. 19

(a) How to Remove it

1. Turn the hand wheel and raise the needle bar to its highest point.
2. Turn the head back.
3. Remove the bobbin case.
4. Turn the two levers holding the hook cover to the outside.
5. Pull the hook towards you, and it will come out.
6. Remove all lint and waste thread. After cleaning, parts must be oiled and wiped off with a clean soft cloth.

(b) How to Replace it

1. Replace the hook with its horn turned down on the open race.
2. Put on the shuttle hook cover.
   Be sure that the setting pin is aligned so that the hook cover does not move.
3. Replace the bobbin case and turn the hand wheel slowly to be sure that everything has been replaced properly.

16. How to Clean the Feed Mechanism

When you have sewn excessively on any starchy material, lint will accumulate between the feed dog and the needle plate as well as between the feed dog and the open race. In this event, to correct the heavy operation of the machine, remove the needle plate and clean the above-mentioned parts.

(a) Slide the bobbin case cover and remove the needle plate.
(b) Clean the above-mentioned parts with a brush.
(c) Turn the hand wheel to be sure that everything is operating properly.
(d) Replace the needle plate and the bobbin case cover in their proper location.

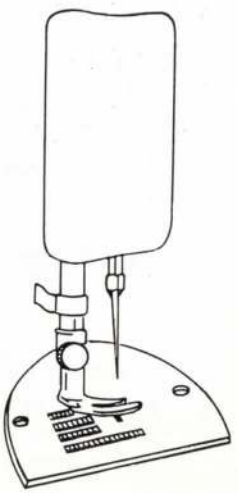


Fig. 20

17. Manual Zigzag Sewing

(a) Firstly, set the pattern selecting knob (4) to the "M" position. Turn the zigzag width regulating knob (1), setting the arrow mark (2) to the desired zigzag width shown the upper part of the knob (1). Then, the desired stitches of zigzag width will be easily obtained.

(b) For straight sewing, set the knob (1) to the "0" position, and also set the pattern selecting knob (4) to the "M" position.

Re: (i) When turning the pattern selecting knob (4), zigzag width regulating knob (1) must be set to the "F" position.

(ii) In turning the knob (4) don't forget the above item (i).

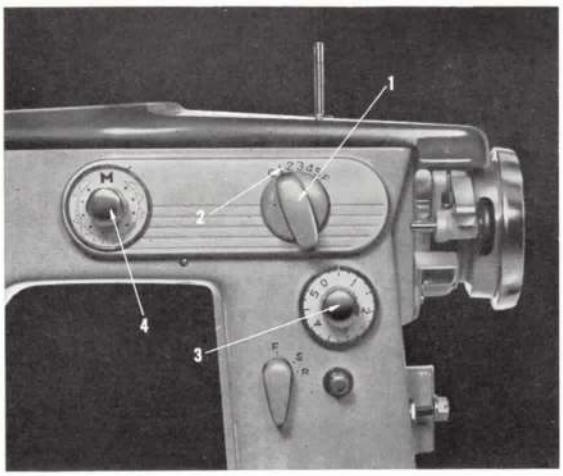


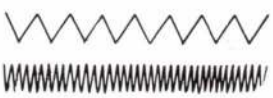
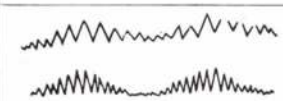
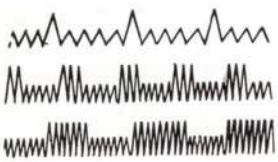
Fig. 21

(c) varied zigzag patterns can be produced by combining the operation of zigzag width regulating knob (1), the stitch length regulating knob (3).

18. Automatic Zigzag Sewing

a) 10 different patterns are shown on the pattern selecting dial (3) separated by two colors, such as silver and gold. Also these patterns are separated both side of Rotary Profiling Plate built in arm (4), such as one

Manual Zigzag Patterns

No.	Patterns	Stitch Regulator	Zigzag knob
1		Wide Narrow	Any point from 1 to 5
2		Wide Narrow	Gradually move from 0 to 5, and return to 0 (Repeat)
3		Wide and Narrow (Repeat)	Any point from 1 to 5
4		Narrow	Zigzag width can be regulated by zigzag width regulating knob. Turn the knob alternately.

side for silver marked by silver spot and the other side for gold marked by gold spot. When you desire the pattern colored silver, Rotary Profiling Plate (4) must be used at surface of silver spot. In case of gold the opposite side must be used.

b) Turn the pattern selecting knob (1), and set desired pattern shown on the dial to the red mark (2).

Then the automatic zigzag sewing will be made easily.

Notice: (i) Firstly turn the zigzag width regulating knob (5) to the "F" position and hold it there. Then, turn the knob (1) to the desired position.
When sewing, the knob (5) must be turned to "0" position.

(ii) In turning the knob (5) don't forget the above item (i).

c) For straight sewing and manual zigzag sewing, pattern selecting knob (1) must be set the "M" position.

d) Varied automatic zigzag patterns can be produced by combining the operation of pattern selecting knob (1).

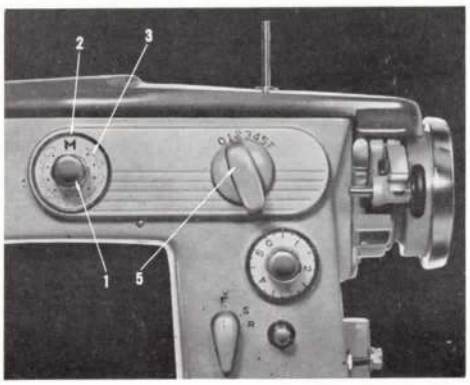


Fig. 22

Fig 23

Automatic Zigzag Patterns

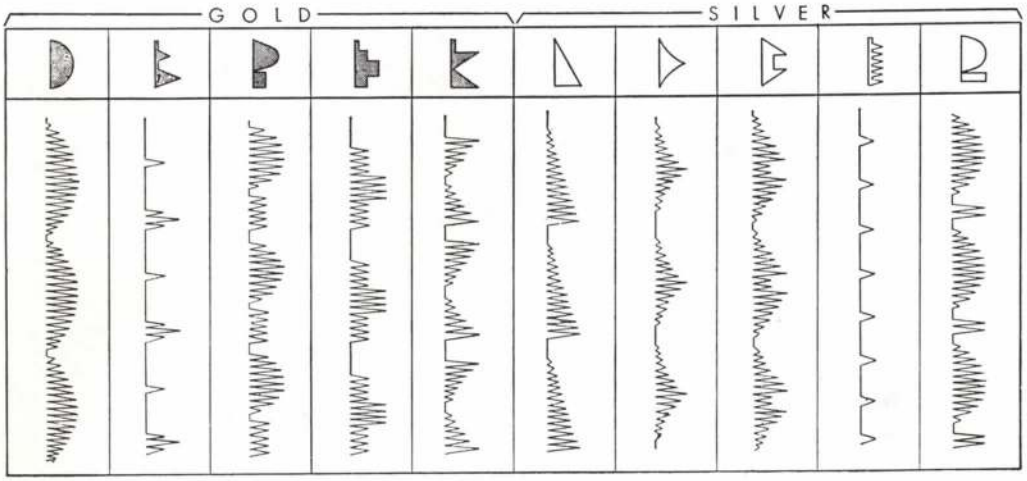


Fig. 24

19. How to Make Blind Stitch Hems

(a) Turn hem to desired width as shown in Fig. 25-No. 1. Fold dress back as shown in Fig. 25-No. 2 with 1/8 inch of hem extending.

(b) Set the zigzag width dial to "3" and the stitch length dial to "2" and sew on the fold as shown in Fig. 25-No. 3.

(c) Unfold the fabric, and you will have a blind stitch hem as shown in Fig. 25-No. 4.

(d) If you desire the blind stitches to be farther apart, then set the stitch length dial to a larger number 3, 4 or 5.

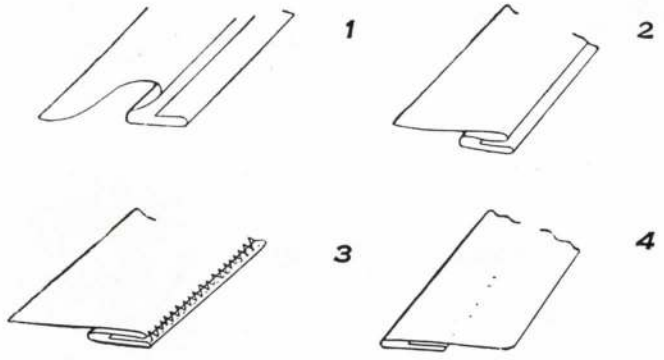


Fig. 25

20. How to Sew on a Zipper

(a) The adjustable zipper foot included in the accessory kit enables you to attach a zipper on the fabric left side or right side.

(b) Remove the regular sewing foot from the machine and replace with your zipper foot.

(c) Open out the zipper and place fabric in position under the needle. Set the machine for straight sewing.

(d) Loosen the thumb screw on the back of the foot and set foot on the left side of the needle and sew the left-side zipper. To sew the right-side zipper, bring the foot to the right side of the needle.

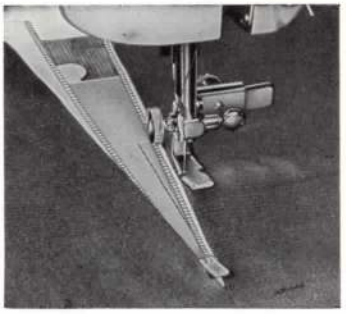


Fig. 26

21. How to Monogram

(a) Use the same basic setting as in embroidery work, however, instead of setting the zigzag dial at " 0 ", make the setting vary from 1-5 depending upon the width of monogram you wish to make.

(b) Best results are obtained when you use some type of iron on transfer pattern for the various letters you are going to make.

(c) Make sure you move the material very slowly, but be careful not to let the thread pile up in one place. By using an embroidery hoop the following of letters will be made easier.

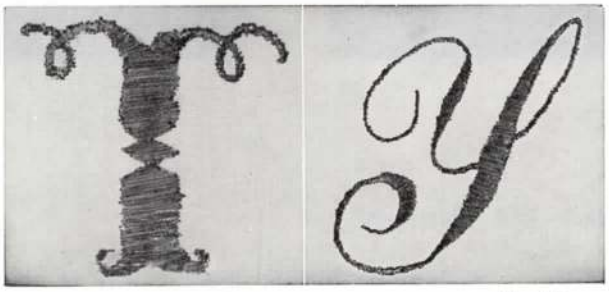


Fig. 27

22. How to Embroider

(a) Replace the upper and lower threads with embroidery thread desired.

(b) Remove the presser foot and set the drop-feed button at "E" position.

(c) Insert the upper thread into the eyelet of the needle as in the case of straight sewing.

(d) Then place the upper end of embroidery spring on the needle clamp (Fig. 28)

(e) Make one turn of the hand wheel and pull the upper thread. Then the lower thread will come up together with the upper thread.

(f) Place the cloth beneath the embroidery spring.

(g) Set the zigzag width regulating knob to "0".

(h) Set the stitch length regulating knob to "0".

1. Give tension to the cloth by tightly framing it on the embroidery hoop, and the finishing will be better. (Fig. 29)
2. Outline a rough copy of the desired pattern.
3. Be careful not to move the cloth suddenly; if you ignore this warning, the needle may break.

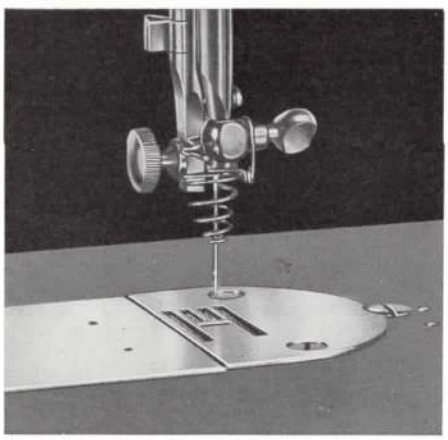


Fig. 28

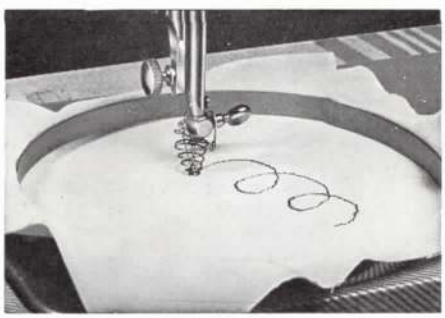


Fig. 29

23. How to Use the Hemmer

(a) With the needle bar as its highest position, attach the hemmer replacing the presser foot, and note carefully if the hemmer is attached with its needle hole aligned to let the needle pass through the center of it. (Fig. 31) Cut the cloth a little on its right corner so that it can be rolled up. (Fig. 30) Raise the hemmer and insert the cloth under it from the left side with the right edge of the cloth being folded up a little.

(b) Insert the right corner so that the edge of the cloth is folded right, and pull the cloth now to the point where the needle can catch it. Lower the hemmer foot on the cloth and make some stitches slowly. With the right thumb and forefinger hold the cloth, then make a hem with right edge of the cloth being smoothly rolled in.

1. Take care to hole the cloth right to ensure that it is always sufficiently fed in the mouth of the hemmer.
2. By sewing the cloth together with lace on the same hemmer, varied hemming can be done.
3. With wider zigzag stitches and a stronger thread tension, all kinds of edge sewing is easily done.

(Practice is required to become skilful with the use of the hemmer and all other special attachments for sewing.)

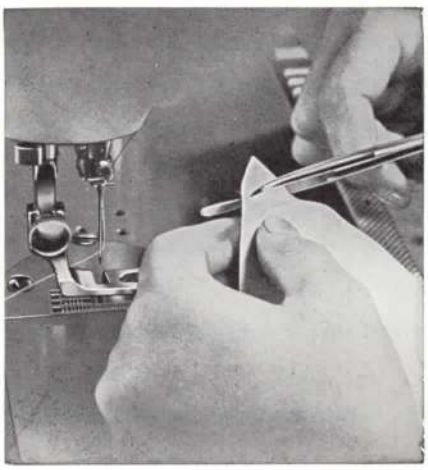


Fig. 30

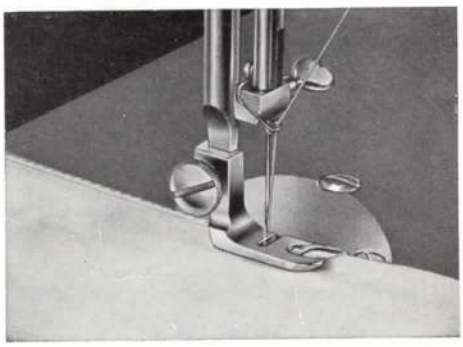


Fig. 31

24. How to Make Button Holes

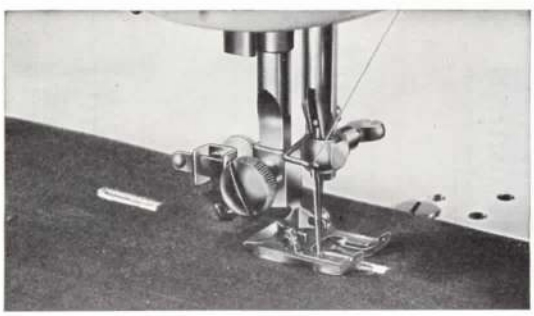


Fig. 32

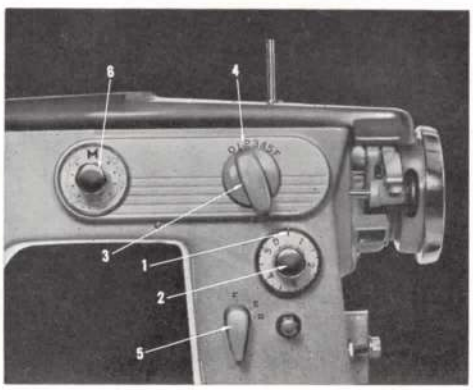


Fig. 33

(1) Preparation

a) Raise the presser foot and turn the hand wheel towards you to bring the needle to its highest point. Then exchange the regular presser foot with the special adjustable button hole foot as shown in Fig. 32.

b) i) Set the pattern selecting dial (6) to "M" position.

ii) Set the stitch length regulating knob (2) to the red line (1) between 0 and 1.

iii) Set the arrow mark of zigzag width regulating knob (3) to red line between 1 and 2 shown the upper part of knob (4).

Now you are ready for making button hole automatically, however, be careful in using the motor power—slowly not too fast.

(2) Actual Sewing

a) Place the cloth beneath the button hole foot. In case a backing is used for a foundation, let it pass through the small hole in the button hole foot, and lower the foot.

b) Start sewing with the button holer knob (5) in position "F". Then the left side seam of button hole is sewn as your desired length shown in Fig. 34-No. 1.

c) After the left side seam is sewn to the desired length, turn the knob to the "S" position for bar tacking. Sew the three stitches or six swings by turning the hand wheel slowly, then the lower bar tacking is made of Fig. 34-No. 2.

d) Set the button holer knob (5) to "R" position and sew the right side seam by reverse sewing. (Fig. 34-No. 3)

e) Repeat the operation as above mentioned (c). Then the upper bar tacking is made. (Fig. 34-No. 4)

(3) Finishing

Slit the cloth in the middle of the button hole by using the special button hole cutter and seam ripper which is included in your accessory kit. Be careful not to cut the threads of your button hole. Always cut from the back. (Fig. 34-No. 5)

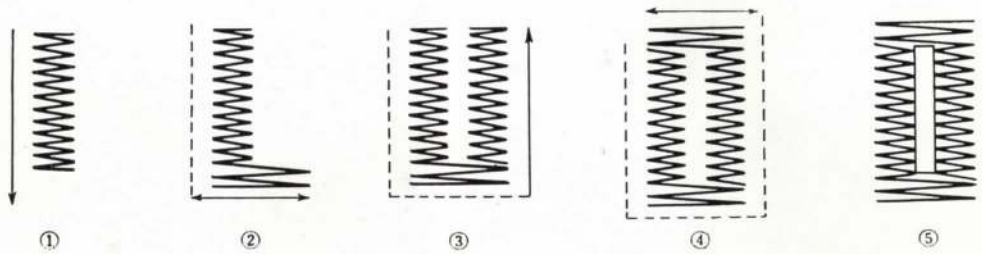


Fig. 34

25. Sewing on Buttons

(a) Use the button sewing foot.

(b) Set the drop-feed button in "E" position.

(c) Place the button under the button sewing foot. Get both holes centered under the foot evenly.

(d) Turn the hand wheel to set the width of your button eyes, and fix the zigzag width knob at the proper position.

(e) Run the machine at medium speed, making about 5 or 6 stitches.

(f) Set the zigzag width knob making a few straight stitches in the same hole to lock zigzag stitch.

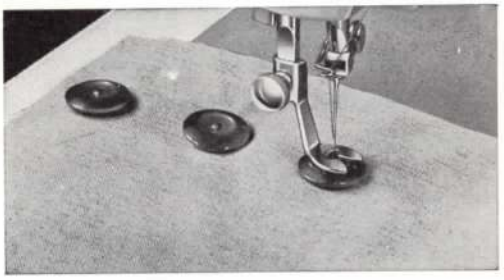


Fig. 35

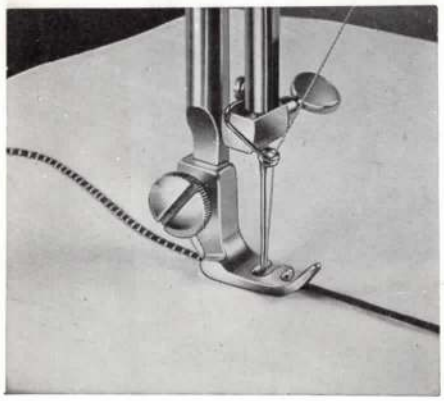


Fig. 36

26. Lace Sewing

(a) Attach the lace sewing presser foot.

(b) Let some of the lace go through the lace hole in the foot. Then put on the cloth, and lower, the foot.

(c) Adjust the width of zigzag stitch according to the thickness of the lace.

27. How to Use the Cloth Guides

Cloth guides are used when two parallel seams are to be made on the edge of the cloth.

(a) Figure 37 indicates the way the cloth guide is attached.

(b) Figure 38 indicates the way the quilting guide is attached.

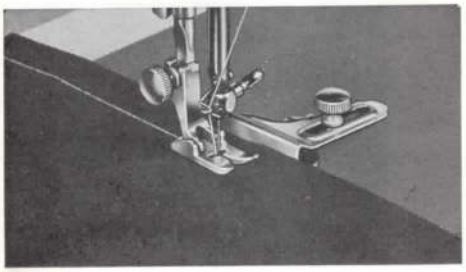


Fig. 37

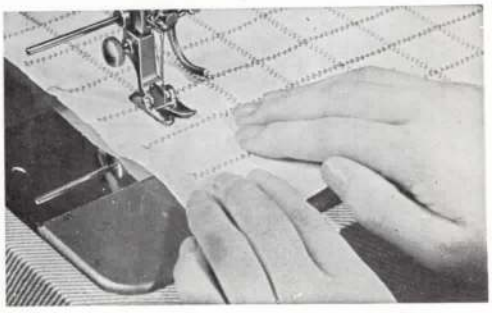


Fig. 38

28. How to Applique

Applique is a design on one fabric which is applied or sewed to another. In the past, it has always been necessary to hand baste the applique design but with your zigzag machine, applique designs are quickly and easily stitched into place. No hand basting is required since the stitch covers the edge neatly. You can use matching or contrasting thread and you can use a large or small zigzag stitch, depending upon the size of the design and texture of the fabric.

Turn zigzag stitch width knob to produce the width of stitch desired.

Set stitch length knob to produce a satin stitch or a very close zigzag stitch, whichever you desire.

After design is stitched in place, cut away material along outer edge.

Fig. 39

Fig. 40

29. Granite Stitch Embroidery

Set machine for embroidery work, with zigzag width dial on "0"

Draw design on material and fill out design by using straight stitch setting with embroidery spring and hoop.

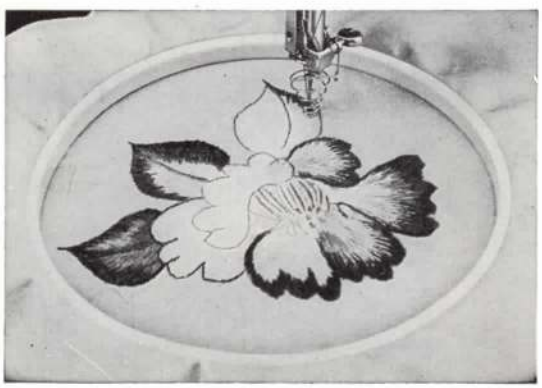


Fig. 41

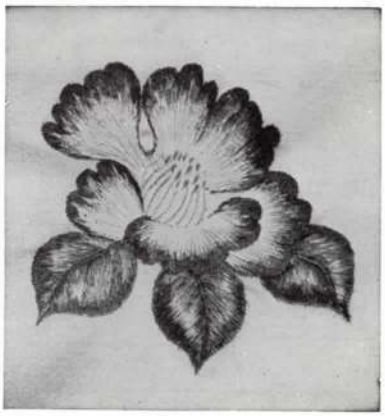


Fig. 42

30. How to do Curving

(a) Use an embroidery hoop, and draw the material tight.

(b) Follow embroidery instructions. Set zigzag width dial between 2 and 5 depending upon the width of zigzag you desire.

(c) Do not turn embroidery hoop as all stitches should be parallel.

(d) Run the machine at half speed being careful to always keep a full stitch while moving the material to create your curving design.

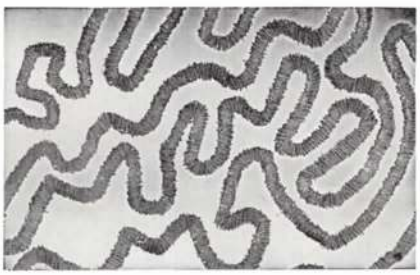


Fig. 43

31. How to do Darning

(a) Use straight hinged presser foot.

(b) Set machine for straight sewing.

(c) Drop Feed Push Button should be in raised (N) position.

(d) Release all pressure on the presser foot by pushing the outside ring of the patch-o-matic darner on the top of the machine.

(e) Set stitch length regulating dial at " 0 " position.

(f) Sew slowly. Move the material slowly back and forth and sideways.

Fig. 44

32. How to do Facing with Bias Tape

(a) Use embroidery foot and folded bias tape.

(b) Use any desired zigzag stitch width.

(c) Put material into fold of bias tape and sew.

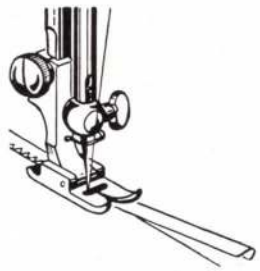


Fig. 45

33. How to Make a Flat Felled Seam

A flat felled seam is used when making shirts, pajamas, jeans and sports wear.

(a) Remove presser foot and attach narrow hemmer to presser bar.

(b) Turn zigzag width dial to 0.

(c) Set stitch length dial to number 4.

(d) Raise presser bar. Place two pieces of material together-with their "right" sides facing each other. Allow the bottom piece of material to protrude to the right about 1/8 inch beyond the top piece of material.

(e) Lower presser bar and stitch both pieces of fabric together on a line parallel to right edge of top piece of material as close to the edge as possible.

(f) Raise presser foot and take out seamed material.

(g) Open and flatten out the material on the machine, with the "right" sides down and the edges of fabrics standing up.

(h) Lift hemmer to a raised position, then allow the 1/8 inch of material which is protruding, to enter the scroll edge of the hemmer.

(i) Lower the presser bar and sew.

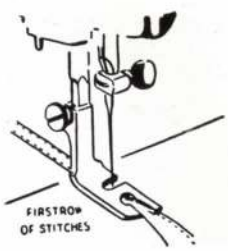


Fig. 46

34. How to do Patching with a Zigzag Machine

(a) Turn zigzag stitch dial to 1/2.

(b) Set stitch length regulator dial at No. 2.

(c) Place the patch over the hole and sew the patch on to the garment. This stitch is almost like a regular machine stitch but is stronger, and resists ripping. Now trim off the projecting edges of material. Turn the zigzag dial to No. 2, while leaving the stitch length dial at No. 2 and sew a zigzag seam over the wavy zigzag stitch.

(d) When completed cut out damaged piece on the reverse side.

35. How to Mend Elastic Knitwear

(a) Turn zigzag width dial to 1/2.

(b) Set stitch length dial at No. 1.

(c) Place the grain of the patch to be inserted in the same direction as the grain of the garment. Now stitch along this patch with the small wavy zigzag stitch. When finished trim off the outer edges of the patch. Now turn the zigzag width dial to No. 2 while leaving the stitch length dial at No. 1 and sew with this wider zigzag stitch directly over the first wavy seam.

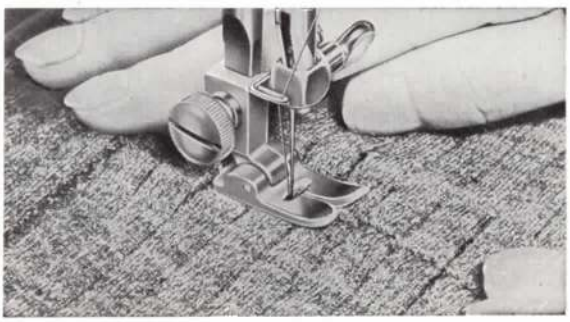


Fig. 47

36. How to Repair a Tear in Material

(a) Turn zigzag dial to 3 or 4 depending upon width of tear to be sewn.

(b) Set stitch length dial at No. 1.

(c) Sew directly down the tear with this zigzag stitch. You may want to go over it twice to doubly reinforce the mend.

37. How to Overcast Seams

(a) Set the machine for zigzag sewing.

(b) Use zigzag presser foot.

(c) Set stitch length dial to give desired spacing between stitches.

(d) Set zigzag width dial to width of stitch desired depending upon material to be used.

(e) Sew along edge of material so that when the needle swings to the left it enters the material and when it swings to the right it is off the material.

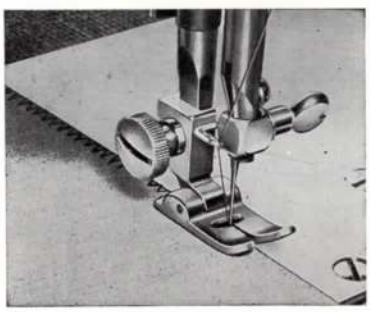


Fig. 48

38. How to do Piping

(a) For this type of work use your zipper foot.

(b) Insert cord in fabric and sew close along cord as shown below.

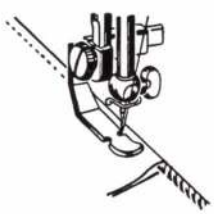


Fig. 49

39. How to do Smocking

(a) Set up machine for straight sewing.

(b) Set stitch length dial at 5.

(c) Sew parallel lines of stitching about 3/4 inch apart through area to be smocked.

(d) Pull these threads until material has been gathered to required size as shown below.

(e) Using embroidery foot sew small zigzag stitches over gathered area. This can be done in straight lines of stitches, or in the form of designs as shown.

(f) Pull out gathered threads.

(g) Gathering with the cord knot one end of the cord and sew on material to be gathered. To do this turn zigzag width regulating knob to " 4 ".
Then pull cord for the desired fullness.

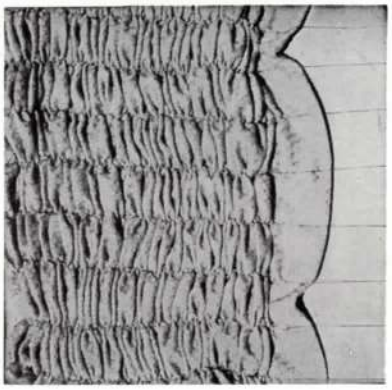


Fig. 50

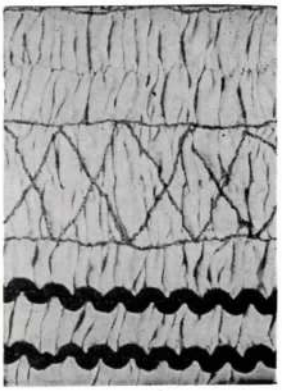


Fig. 51

40. How to do Gathering

(a) Set machine for straight sewing.

(b) Set stitch length dial at 5 for longest stitch. It is advisable to use two or more rows of stitching approximately 1/4 inch apart.

(c) Pull threads to top side of material at each end of stitching and twist the threads together.

(d) Hold the ends of the thread securely in the right hand and slide the material on the thread for the desired fullness.

41. How to Keep the Machine in Good Repair

(1) Oiling

Oiling is so important that if you should be negligent in the respect you would not only shorten the machine's service life but also could cause it to become out of order. Do not use too much oil. It is not only unnecessary but may stain or soil the material.

(2) Where to Oil

(a) The arrows indicate those parts to be oiled.

(b) Just one drop at a time will do.

(c) When you have oiled those parts indicated, run the machine for a while slowly so that the oil can penetrate and spread itself.

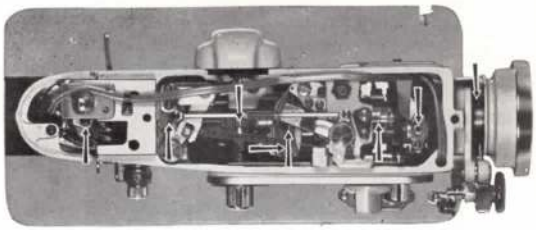


Fig. 52

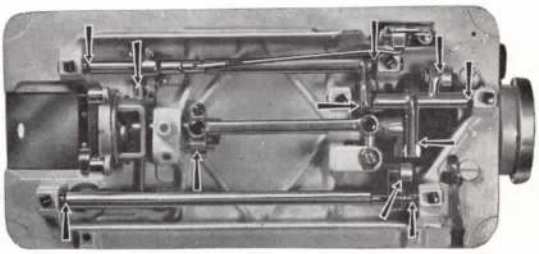


Fig. 53

(3) The Quality of the Oil Used

Oil of poor quality will not only cause the machine to run heavily but also will cause wear and tear of the unit. Use only good quality oil refined for use on sewing machines.

42. The Care and Adjustment of the Motor

(1) Attaching the Motor to the Machine

Place the motor bracket (1) on the tongue (2) over which the slot in the motor bracket fits, on the arm directly under the hand wheel, as shown, so that the screw hole in the center of the tongue can be seen through the slot in the motor bracket. Then insert the screw (3) and after shifting the motor upward as far as it will go, tighten the screw.

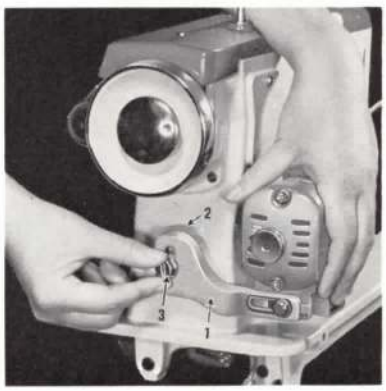


Fig. 54

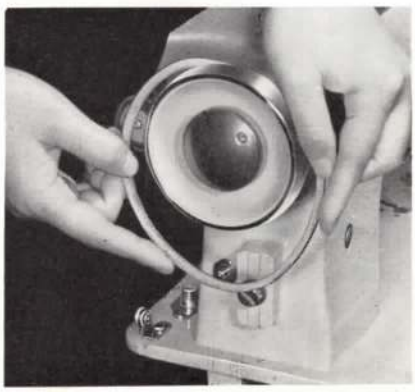


Fig. 55

(2) Placing the Belt on the Motor

Place the belt on the machine. Then slip the belt in the groove in the hand wheel, and force it into the groove in the motor pulley.

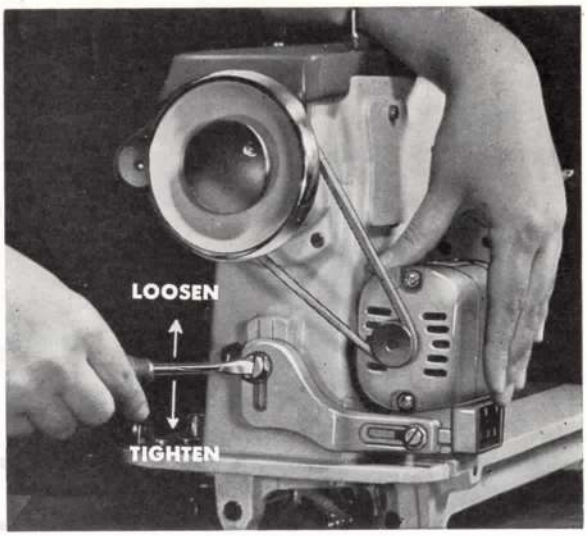


Fig. 56

(3) Regulating the Belt Tension on the Motor

To adjust the belt tension, loosen the attaching screw about one turn with a screw driver. This will allow the motor to drop downward. Now firmly tighten the screw, and the belt should have the correct tension.

The method of applying oil to bearings should be varied according to the characteristics of the motor.

An oil hole is normally closed from inside with a ball. When applying oil, press the ball down with the oil can pipe, and provide a few drops of quality oil. Oiling should be restricted only to oil holes, and under no circumstances oil any other parts.

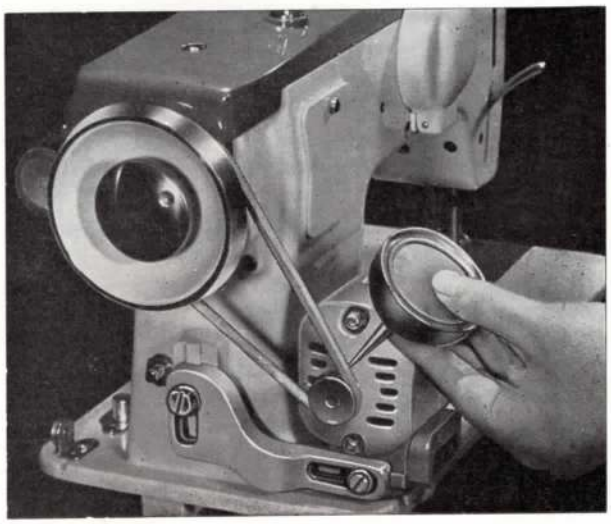


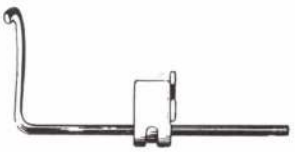
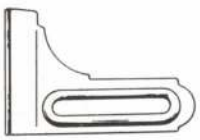
Fig. 57

43. UNSATISFACTORY CONDITIONS: CAUSES AND REMEDIES

Unsatisfactory Condition	Cause	Remedy
The Upper Thread Breaks	1. The needle is not threaded correctly. 2. The tension is too tight. 3. Something is wrong with the needle. 4. The thread used is too heavy for the needle. 5. The thread take-up spring is broken. 6. The needle is not set correctly. 7. The needle plate, the hook, or the presser foot is damaged.	Thread the needle correctly. Loosen it. Replace it. Replace it. Replace it. Set it correctly. Replace it.
The Lower Thread Breaks	1. When the lower thread is not wound correctly, it gets entangled. 2. The lower thread is off the tension spring of the bobbin case.	Wind it properly. Put it in its proper position.
Skipped Stitches	1. The needle is not attached to the needle bar correctly. 2. The needle is either bent or blunt. 3. The pressure of the presser bar is not sufficient. 4. The wrong needle is used.	Attach it properly. Replace it. Tighten it. Replace it.
The Needle Breaks	1. The needle is bent. 2. The needle is not attached properly. 3. The material is too thick or heavy. 4. The material is being pulled by operator 5. The needle is of inferior quality.	Replace it. Attach it correctly. Use proper needle. Don't pull on the cloth. Replace it with proper needle.
Stitching Forms Loops	1. The thread tension is not properly adjusted. 2. The needle is not threaded correctly and/or the bobbin is not wound properly. 3. The weight or thickness of the material and the size of the thread are not in accord. 4. The thread take-up spring does not work well.	See instructions for adjustment of upper and lower thread tensions. Thread and/or rewind properly. See instructions covering the use of proper needles and threads with varying materials. Replace it.
Seams Shrink or Pucker	1. The thread tension is too tight. 2. The pressure of the presser foot is too strong. 3. The position of the feed dog is too high	See instructions for adjustment of upper and lower thread tensions. See instructions for proper pressure to be applied to cloth. See instructions covering adjustment of the feed dog.
Irregular Stitching	1. The upper and lower threads are of inferior quality. 2. The pressure of the presser foot is inadequate. 3. The thread is wound around the bobbin. 4. The position of the feed dog is too low.	Use thread of best quality. See instructions for proper pressure to be applied to cloth. Rewind it. See instructions covering adjustment of the height of the feed dog.
The machine does not work smoothly and is noisy	1. The machine is in need of oil. 2. Dust and waste thread have collected in the hook mechanism. 3. Oil of inferior quality is used and has coagulated. 4. The tension on the belt is too tight.	Apply oil as per instructions. See instructions pertaining to cleaning of the race and hook. Clean thoroughly and oil again with proper sewing machine oil of best quality. Loosen it.

NOTES

Your Accessories Kit

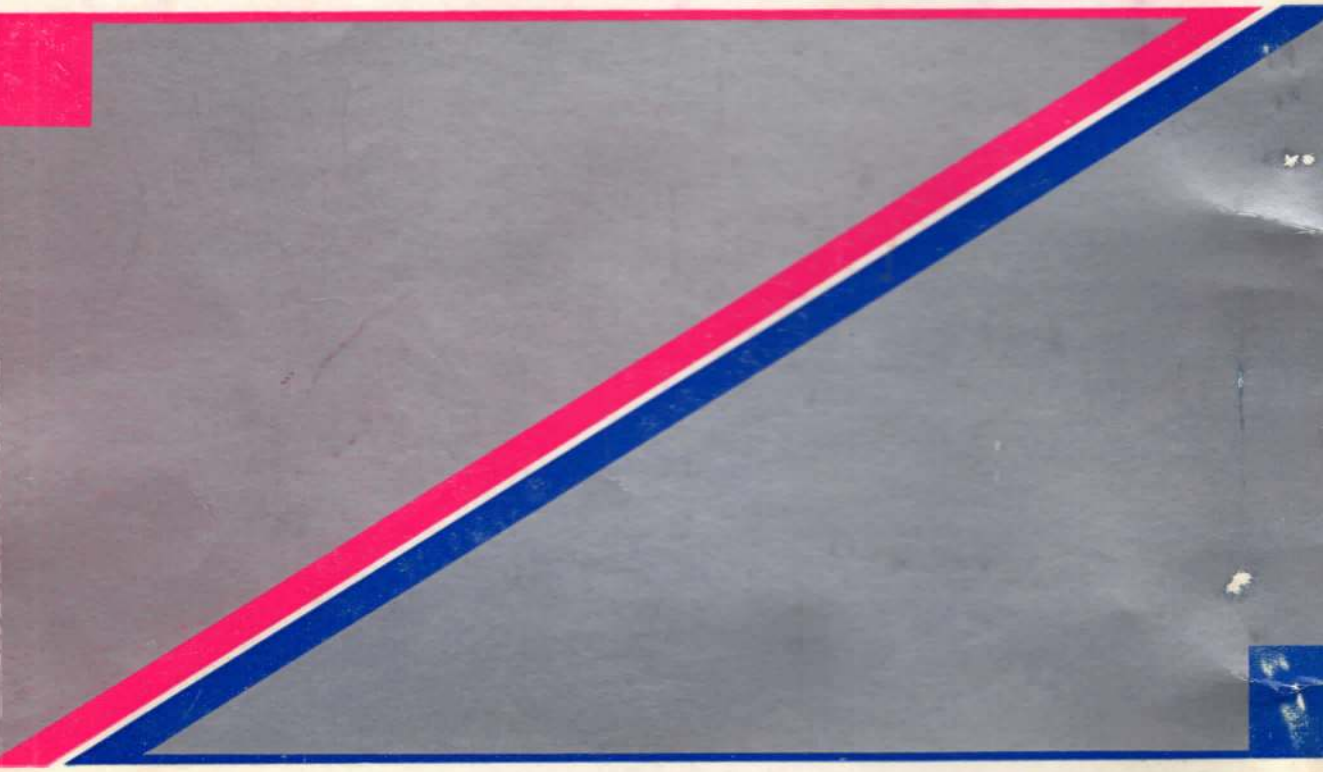
	Presser foot for straight stitches		Hemmer
	Button hole foot		Button foot
	Cording foot		Zipper foot
	Embroidery foot		Quilter
	Cloth guide		Thumb screw

as well:

Accessory box	1	Needle case	1
Oilcan	1	Needle plate for straight stitches	1
Screw driver (large)	1	Spool pin	1
Screw driver (small)	1	Spool pin felts	2
Bobbins	5	Ripper	1
Needles	5	Bulb	1

133
100
243

120
97
217



PRINTED IN JAPAN